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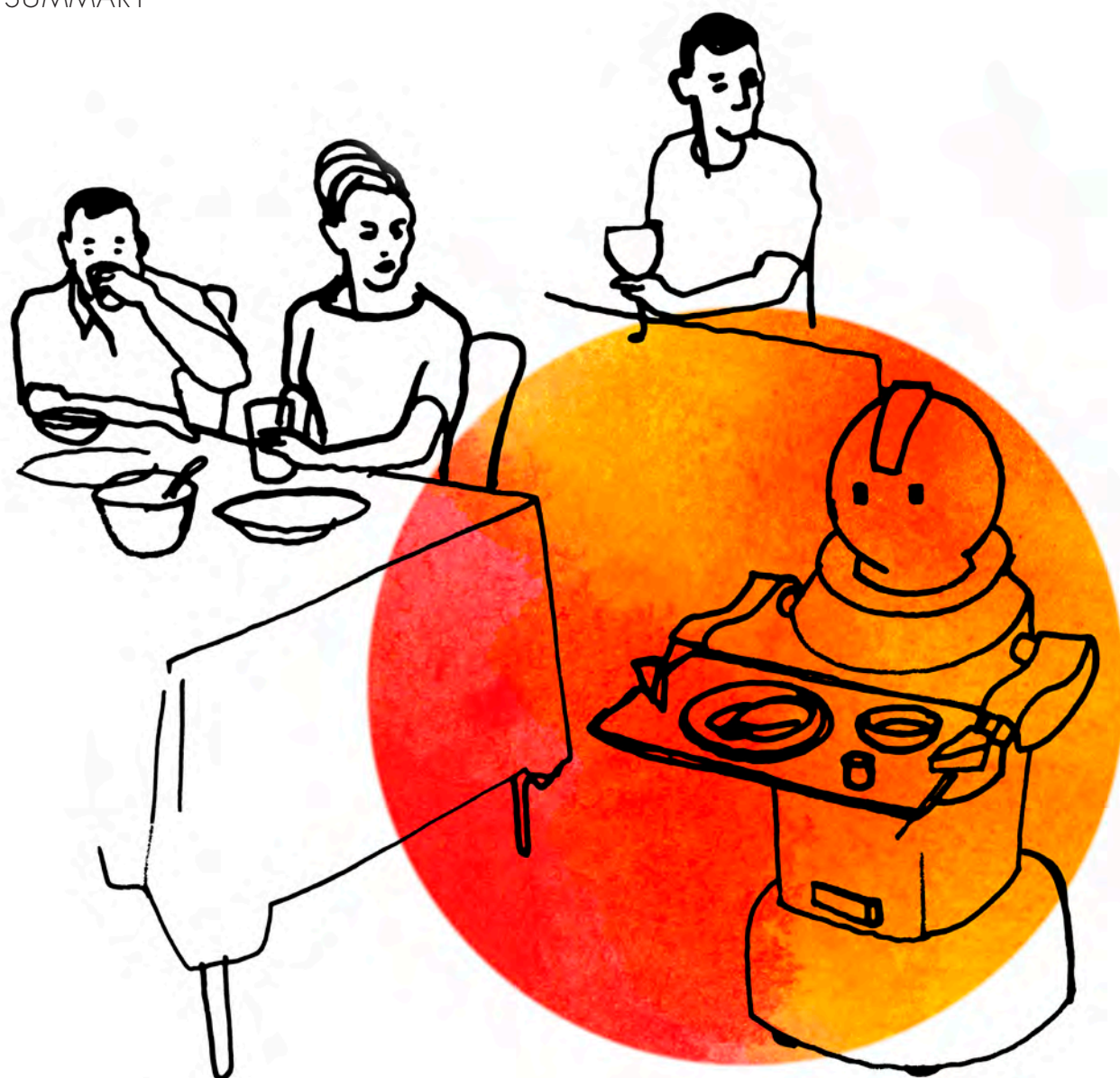
A GROWING INDUSTRY DURING TIMES OF CHANGE

Forecasts for the skills and competences needed in the hotel and restaurant sector up to the year 2030

SUMMARY

2018

BESÖKSNÄRINGENS FORSKNINGS- OCH UTVECKLINGSFOND

EN RAPPORT FRÅN

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PREFACE

The hospitality industry is one of Sweden's fastest growing core sectors, and all indicators suggest that this growth will continue. This means that there are major growth opportunities for the hotel and restaurant sector. However there are also challenges; for example, several studies in recent years have shown that the industry's development points to a growing need for skilled hospitality workers.[1] At the same time, there are now several forecasts, both national and international, predicting that digitalisation and automation will have a major impact on the jobs of the future, not the least in our industry.

The questions we ask are of paramount importance for those of us who represent the labour market's partners. They are also highly relevant for those responsible for education, industry, and labour-market policies both nationally and regionally and for those involved with educational programmes at all levels from upper secondary school to second-cycle courses and study programmes.

In order to increase our knowledge in this area, in the autumn of 2017 we commissioned Kairos Future to investigate the issue of automation's impact on future skills needs in the hotel and restaurant sector within the framework of our Future Council (which is a joint initiative of Visita and HRF). We have supplemented this mission with fresh international analyses concerning automation and the jobs of the future in the Government Inquiry *A Country to Visit*.[2]

In short, our industry will experience changes. There is nothing to suggest that fewer people will be employed within the industry, but rather that the demand for new professions and occupations, with new work tasks and capabilities, will increase. All analyses also suggest increased demands for education, even at advanced levels, and the need for continuing education to take place throughout one's working life. Upper secondary school career study paths are important to the industry, and these need to be shaped accordingly in order to attract more applicants. However, the industry will also need more people with a higher education, and thus additional academic educational programmes specifically adapted to the needs of the industry will be needed. The demand for many routine tasks is foreseen to decrease in the labour market in general because routine work with lower pay is likely to be automated to a greater and greater extent in the future. As a service-intensive industry, we thus see our role of offering employment to the young and to those who are new to the labour market becoming even more important.

Predicting the future is always a challenge. However, we hope that this report can provide a basis for stimulating discussions that will hopefully lead to important insights into how the future of the hotel and restaurant sector, and thus the need for education, is likely to be affected by new consumer behaviour, shifts in technology, digitalisation, and automation. In light of predictions of continued positive growth, it would be wise to start planning now for the future.

Stockholm, June 2018
Malin Ackholt, HRF chairman and *Jonas Siljhammar, CEO of Visita*

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[1] Growing Pains?, BFUF Report #2, 2014, Skills Supply and Skills Needs in the Swedish Hospitality Industry, Swedish Agency for Economic and Regional Growth, 2016 and National Strategy for the Swedish Hospitality Industry Nutrition – Strategy 2020.
[2] Putting Faces to the Jobs at Risk of Automation (OECD 2018) and What Jobs First at Risk from Automation (Price PricewaterhouseCoopers (PWC), 2018), SOU 2017:95 A Country to Visit.

1/INTRODUCTION

Sweden's fastest growing core sector

The hospitality sector is one of Sweden's fastest growing core sectors. Tourism consumption amounted to SEK 317 billion in 2017, an increase of 7.4 % compared with 2016. Tourism consumption in Sweden by visitors from abroad generated SEK 134 billion in revenues, an increase of 11.4 % from 2016 to 2017.[3] The hotel and restaurant sector, which is part of the hospitality industry, employed about 192,000 individuals in 2017.[4]

All indicators suggest a continued increase in tourism. According to international assessments, global travel and tourism will increase by about 3 %per year until 2030. This means that there are major growth opportunities for the hotel and restaurant sector. However there are also challenges, and the future supply of skills and the question of how education can better match these needs are two of the issues we deal with in this report.

Other challenges that the hospitality industry has to deal with are those relating to global changes that affect travel.[5] The population of the world is becoming older, richer, and healthier, which leads among other things to an increasing average age and a larger middle class. Changes in the political landscape and reduced growth rates in other countries can also have consequences, and social, ecological, and financial sustainability will continue to be the focus of developments within the industry.

Purpose of the project

The BFUF has previously examined the future supply of expertise in the hospitality sector.[6] This new report has a stronger focus on the effects of automation and digitalisation.

With automation, digitalisation, artificial intelligence development, and other technologies, certain tasks will disappear and new ones will be created. In order to increase our knowledge in this area, in the autumn of 2017 we commissioned Kairos Future to study the issue of automation's impact on the industry and to develop forecasts for future skills requirements in the hotel and restaurant sector. This investigation has been complemented by recent international analyses of automation and future jobs, as well as an analysis of competency and educational programmes in the Government Inquiry *A Country to Visit*.[7]

The *A Growth Industry During Times of Change* report gives an idea of how the sector might look in 2030 with regards to the number of employees in different traditional occupational groups. It also suggests new types of skills that might be found and describes how the sector's educational programmes need to be adapted accordingly.

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[3] Annual Accounts for Swedish Tourism 2017, Swedish Agency for Economic and Regional Growth.

[4] Visit Barometer (May 2018)

[5] Trend Report (Visit Sweden, 2017).

[6] Sweden's most attractive sector, BFUF Report # 1, 2013 and Growth pain, BFUF Report # 2, 2014.

(1) Putting faces to the jobs at risk of automation, OECD 2018; What jobs are first at risk from automation, PricewaterhouseCoopers (PwC), 2018; and A Country to Visit – A Coherent Policy for Sustainable Tourism and a Growing Tourism and Hospitality Industry, SOU 2017:95.

2/SUMMARY CONCLUSIONS

1 Massive urbanisation is a major factor propelling the growth of the sector

In recent years, the population shift to urban metropolitan areas has increased, and an increasing number of Swedes have committed themselves to an urban, international lifestyle. Increased living in smaller spaces results in one spending more and more time outside the home, and the hotel and restaurant sector is growing in part due to this massive urbanisation and its associated new behaviours. For example, going out to eat or having a coffee has become a daily activity, and this has propelled the hospitality industry.

2 The industry is growing and becoming increasingly diversified

Increased national and international tourism, gourmetisation, and general prosperity growth among large sections of the population are propelling the industry's growth, and different parts of the industry are becoming more specialised because increased volume allows the opportunity to focus on narrower segments. Digitalisation and automation have propelled advancements in the efficiency and speed of many tasks, but the industry still relies heavily on the genuineness of human interactions and the provision of personal service. In addition, the gourmet trend has led to affects on consumption vis-à-vis premium products and services, and more and more people are willing to pay more for food and beverage experiences.

3 Traditional jobs within the sector are expected to decline

Despite predicted positive growth in the industry, the total number of employees in traditional sector jobs is expected to decrease in the long run due to increased digitalisation and automation. According to Kairos Future's estimates, it is reasonable to assume that between 25 and 60 % of the traditional jobs in the sector will be automated by 2030. How fast and to what degree the automation will have impacts depends upon the incentives, such as costs for employees, anticipated productivity gains, and the costs for the automation itself, but also pure quality gains with automation such as higher levels of service. Large companies and companies with large workplaces have better opportunities to benefit from automation than do smaller companies and units.

4 New roles and jobs are added

Roles and tasks related to creativity, perception, motor skills, and social skills are difficult to automate and are likely to increase in value. If the sector adapts quickly to the new conditions, many of the traditional jobs are likely to change in order to better match the new challenges in the future. Complex tasks like solving unexpected problems, reading and responding to moods and situations, creating new menus, helping and educating guests, and making beds are difficult to automate. While these are likely to still be important roles for people in 2030, the industry as a whole will also need new types of services such as SaaS (Software as a Service) or RaaS (Robot as a Service) delivered by actors outside the hospitality industry.

With workplaces where people and machines work together, new demands are placed on both employees and managers, and being able to teach a robot, being able to act as a problem-solver when technology fails, or being able to train the company's AI in new areas of knowledge will become desirable skills in an increasingly automated sector.

5 The staff turnover is a greater challenge than that posed by the future growth of automation

The hotel and restaurant sector currently have a yearly turnover of 25 % of its staff. Recruiting competences is a greater challenge than that posed by the predicted growth in automation. The competition for competent and skilled employees is fierce, both between industries and among companies within the same sector. Finding, developing, and maintaining expertise will become the central issue over the next 10 years.

6 Individuals with a low level of education and young people in the risk zone

All analyses indicate that individuals with low education and youth will generally be harder hit by developments in automation. Some of the routine tasks within hotel and restaurant work can be expected to be automated, such as kitchen assistants and some cleaning and service provision, and thus many of the jobs young people currently have during their academic studies and that they often obtain as their first job after graduating will be able to be automatised. This implies that education must, to a greater extent than today, and especially in the upper secondary schools, teach new skills and offer internships. This also means that education at higher levels can be expected to be increasingly demanded by companies in the hotel and restaurant sector.

7 Need for an open and flexible educational programme structure

Training at all levels must be better adapted to new opportunities and challenges. Industry slippages are occurring right now, therefor the capacity of development and adaption will be much needed. The educational system needs to be re-designed with a more flexible, open and clear structure. Making a career in the hospitality industry would be easier with more structured transitions between the educational system and working life.[8] This imposes requirements for good cooperation between the Swedish National Agency for Education, the Swedish Public Employment Service, the educational system, those responsible for promoting regional growth, and, in particular, the industry itself, and a primary goal of such work would be to formulate needs and offer workplace-based internships for students studying at upper-secondary schools as well as at universities and other institutions of higher education.[9]

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[8] A Country to Visit – A Coherent Policy for Sustainable Tourism and a Growing Tourism and Hospitality Industry, SOU 2017:95.

[9] The summary conclusions are based both on Kairos Future's assignment and BFUF's own analysis.

3/KAIROS'S PICTURE – THE INDUSTRY AND THE GREATER WORLD AROUND US

Twelve trends as we approach 2030

Kairos Future has used the following twelve trends as the starting point for its analysis and forecast.

1 Massive large-scale urbanisation continues

The metropolitan areas are growing as a whole, and the growth rate has accelerated in the 21st century. The move from smaller towns to big cities and their surrounding areas is expected to continue.

2 Compact housing accommodations become more common

Almost every fifth inhabitant in Sweden lives in one of the three metropolitan municipalities. Stockholm has the lowest average housing space per person. More and more people are forced to live and build their lifestyles based on the conditions offered by compact housing.

3 Increased travel and tourism

International travel continues to increase. Tourism consumption in Sweden from visitors from abroad amounted to SEK 134 billion in 2017, an increase of 11 % compared with the previous year. The largest foreign markets are Norway (3.4 million overnight stays) followed by Germany (3.0 million) and Denmark (1.1 million). According to international assessments, global travel and tourism will increase by about 3 % per year until 2030.

4 Increased diversity

The cultural diversity in Sweden is increasing on many levels and along many dimensions, and increasing differences in lifestyles, group belongings, and identities are evident. Everything will likely become more homogeneous in the society of the future, and product and service offerings will be less and less standardised. An increased segmentation of the supply is thus to be expected.

5 Knowledge about food and drink increases

The trend for knowing about and being able to evaluate food and drink is still strong, but it is now more about sustainability and authenticity.

6 Everything becomes an experience

An increasing proportion of consumption is spent on "experiences" instead of consumption or capital goods. Participating in something is often valued more than owning something, and the experience industry is growing both nationally and globally. Much of the latest developments in experiences are digitally driven, but as a counter-trend to digitalisation the experiences that cannot be digitised are perceived as more valuable by the consumer.

7 Premium experiences are increasing

With increasing material standards, there is space for luxury and gourmet variants of a wide variety of goods and services. There is a downward trend in the consumption of luxury goods, but exclusive services and experiences have increased.[10] Authenticity has a premium for consumers today, and the origin of the product and storytelling around the brand are important.

8 "Rurbanisation" and longing for the countryside

Urbanisation is characterised by increased interest in rural settings and contact with nature. Urban farming is a strongly growing lifestyle trend, and arable plots of land for cultivation are increasingly seen in urban areas, and growing edibles on one's balcony is becoming increasingly trendy. The demand for and sales of organic products continues to increase, [11] and this can be seen as an expression of our longing for what is natural and healthy.

9 Zero friction life is becoming more and more desirable

When time and energy become ever more valuable resources, simplicity and accessibility become increasingly important. We become less tolerant of everyday disturbances, and our lives depend upon everything running smoothly. The industry's *just-in-time* concept is on its way into the private life of individuals. A Nordic survey found that time and energy are the currencies where the greatest shortage is seen, more than money.[12]

10 Digitalisation and automation are accelerating

Technology is increasingly integrated into our everyday lives. Today, almost everyone has their smartphone by their side 24 hours a day. We search for, evaluate, choose, book, and pay for our experiences directly online. New technology areas such as virtual reality, augmented reality, and mixed reality, where technology integrates with our reality, are increasing rapidly. By 2030, virtual reality will likely be difficult to distinguish from the real world.

11 Flexible working life

In many operations, employees are no longer bound to specific geographic locations or specific hours of the day to perform their work. More and more cafés, restaurants, hotel lobbies, and lounges are designed to be able to function as work and meeting places.

12 "The gig economy" becomes more widespread

Digitalisation establishes the preconditions for "on-demand" and the "gig economy," where digital platforms establish large-scale, effective marketplaces. Platforms such as www.jobble.com in the United States make it possible to post potential missions and to find those willing to complete them quickly.

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[10] "Report Luxury spending is down, while global instability is up," Forbes, 2017.

[11] http://www.ekoweb.nu

[12] Kairos Future/Inwido (2014).

Trends and the sector

The net effect on the sector of the change processes we are now faced with is summarised as follows: The sector is *growing*, it is becoming *diversified* into increasingly separate and specialised parts, and *automation* will play a major role in the sector's future needs for skills and expertise.

Overall, several trends in the world interact with the fact that the hotel and restaurant sector is growing strongly. The sector's outlook is good, and this is supported by several trends. Strong population growth in major regions, combined with prosperity, provides a comprehensive and sustained lifestyle change towards more socialising and more food and drink outside the home.

Current trends make up the basis of Kairos Future's forecast of sector growth over the next ten years, where demands from both Sweden and abroad are expected to continue to increase.

4/KAIROS'S FORECAST – THE SIZE OF THE SECTOR IN 2030

Kairos Future's forecast of the sector's future production volume and staff needs is based on the high probability that the hotel and restaurant sector will continue to be a growing industry in the coming decade. The forecast for the future skills needs in the hotel and restaurant sector is the result of a balanced projection of the development of a large number of unknown factors. The result is a description of a possible future.

Household consumption

By 2030, Sweden's population is estimated approach 11.3 million inhabitants. Total consumption per person in kronor has risen steadily since the turn of the millennium despite cyclical changes. Kairos Future assumes that this development will continue the same way.[13] Today, consumption of hotel and restaurant services accounts for a larger share of household spending.

Increased consumption from SEK 114 billion to SEK 213 billion by 2030?

If the trends continue as Kairos Future predicts they will, Swedish households' consumption of hotel and restaurant services will grow from approximately SEK 114 billion today to approximately SEK 213 billion in 2030, an increase of 86 % (adjusted for current prices). Consumption of restaurant services is expected to increase significantly more than the consumption of hotel services because it is becoming increasingly common to eat and drink outside the home. There is, of course, a limit to the proportion of consumption that might be able to consist of restaurant visits, but Kairos Future's assessment is that we have not approached this situation yet. The forecast for 2030, with approximately 6.8 % of meals being taken outside the home, is still far lower than most southern European countries today.[14]

Consumption by visitors from abroad

The consumption by visitors from abroad is more difficult to model than the consumption by Swedes themselves. The total of all guest nights by visitors from abroad in hotels, youth hostels, camping, and holiday camps/villages in 2030, based on forecasts, is close to 19.5 million guest nights, compared to approximately 15.6 million in 2016, an overall total increase of approximately 25 %. This means an average annual increase of about 1.6 %.

SEK 41 billion from tourists from abroad in 2030?

Kairos Future forecasts an increase in foreign tourists' hotel and restaurant consumption from about SEK 30 billion in 2016 to nearly SEK 41 billion in 2030 (adjusted for current prices), an increase of 37 %.

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[13] Kairos Future assumes that the average trend since 2000 will continue at the same rate to 2030. This assumption is made throughout the report when estimating the forecasts.
[14] http://ec.europa.eu/eurostat/statisticsexplained/index.php/ File:Table_6_COICOP_MSs_Total.png

Business enterprise and governmental consumption

SEK 83 billion from companies and governmental authorities in 2030?

From 2000 there has been a stable, linear, positive trend in consumption by business and governmental authorities. This shows no signs of decline, and there are no clear signs from the outside world of anything that will affect this trend. If this assumption holds, this represents an increase in business and governmental authorities' hotel and restaurant consumption from some SEK 54 billion in 2014 to almost SEK 83 billion in 2030 (adjusted for current prices), an increase of 53.7 %.

Total consumption

2030: SEK 337 billion

When Kairos Future combined the three sources of demand (households, tourists from abroad and business enterprise & governmental consumption) they found a predicted increase in consumption to SEK 337 billion by 2030, an increase of approximately 83 %. Note that the forecast does not encompass all sectors that can be considered as a part of the hospitality industry. For example, Kairos Future excluded shopping and the experience sectors and only dealt with the hotel and restaurant sectors. On the other hand, restaurant consumption by local residents is also included, even though this is not ordinarily included as part of the hospitality industry.
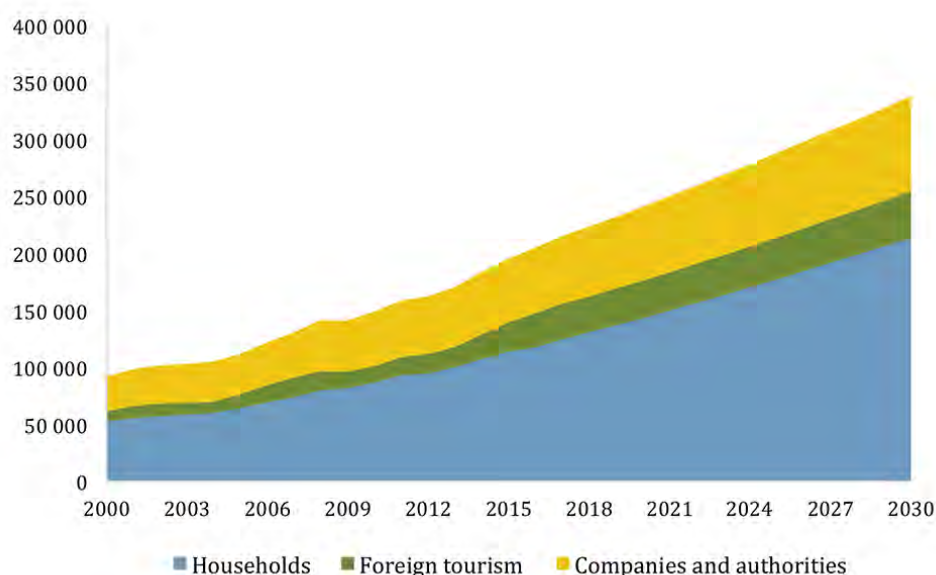

Figure 1. Total forecast of total consumption of hotel and restaurant services, in SEK thousands (adjusted for current prices).

How many people need to be employed in the sector to meet demand?

During the period 2000–2016, the number of annual jobs in the sector went from about 77,000 to close to 130,000.[15] Consumption has increased at an even quicker pace; the sector produced services worth approximately SEK 947,000 per employee in 2000 and about SEK 1,203,000 per employee in 2015, an increase of 27 %.

The explanations for an increase in the value of output per employee include both real increases in productivity and value as well as inflation. The relationship between productivity, quality improvements, inflation, and sector-specific price increases is complicated, but Kairos Future does not see any signs of a clear breakout trend in any of these factors. The safer alternative is to depend on the still fairly clear trend in the measure "nominal production output value per employee," namely a relatively steady increase per year. By 2030, every employee in the hospitality sector in Sweden is expected to produce approximately SEK 1,366,000, an increase of approximately 14 %.

The role of automation

Consumption will grow in the future, but will the need for labour grow at the same rate?

Kairos Future's survey of leaders in Sweden shows that automation affects Swedish hospitality companies to a greater extent than other sectors and that about 20 % of the jobs in the sector could be automated using currently available technology.[16] Because this transition to automation has not already occurred, there is a lack of time and a hesitation in taking on large investment costs. Automation has played the greatest role in information and booking, but the industry leaders interviewed here see the largest difference in the future being the provision of more advanced services.

Digitalisation has the same effect in the hotel and restaurant sector as in other sectors, and it reduces the need for some skills and increases the need for others. As in so many other industries, knowledge in the meeting between man and machine and how we can work side-by-side in the best way is required.

Work tasks linked to solving unexpected problems, reading and responding to situations and moods, creating new menus, making beds, and planning and coordinating activities and evaluating their outcomes will most likely continue to be performed by people in 2030.[17] One hundred % automation is very unlikely. Research points to an estimate that approximately one-third of the staff of a company will need to be involved in roles such as floor walkers/greeters and will be sort of problem solvers and quality reviewers who are available to deal with issues or problems when they arise.[18]

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[15] The number of employees refers to the annual average for the number of employees converted to full-time employees, as reported in the company's Annual Report. Statistics Sweden.

[16] How is Swedish tourism affected by automation? (Kairos Future, 2015).

[17] The conclusions are based on Kairos Future's overall assessment of insights from researchers and sector experts.

[18] Professor Stanislav Ivanov (Varna University of Management, Bulgaria, 2017).

Work tasks that are easy to automate include hotel check-ins, online searches for information, and robots that take care of room service or respond to questions from guests in any of a number of languages.

What is possible – is not always desirable

Few can actually imagine replacing the human contribution in the service experience with a robot.[19] At the same time, we increasingly accept technology in our everyday lives, especially if it creates greater value in terms of efficiency and freeing up time.

The hotel and restaurant experiences will probably take two directions – "high tech" and "high touch". In order to push prices, offerings with a high degree of automation will be needed. However when most of the service process is digitalised (and thus becomes duplicable), the personal touch and human touch might become increasingly valuable.[20] Experiences where people are integrated can be priced 2–3 times higher.[21] The demand for each respective experience will be able to be calculated according to the customer's needs; for example, the stressed business traveller might perhaps desire an impersonal hotel or fast food meal, while the weekend traveller might appreciate more personal service. In the future, companies can compete with their *service profile* to an increasing extent due to the fact that it is difficult to profile oneself with function, but much easier with passion and feeling.

The speed of automation depends on the incentives

The decisive factors for how quickly and comprehensively companies take on the new technology are the purchase cost and "return on investment." Even the quality will be a decisive factor. Today robots and technical solutions can sometimes be perceived as slow and having a high margin of error, but what happens when technology improves and becomes faster? Automation can also provide benefits such as safer delivery, availability 24 hours a day, and higher productivity, but certain actors are still likely to choose to position themselves in a premium segment by paying for human services.

Other incentives in addition to the economy will have an impact on the automation rate by 2030, primarily in public policy and society where labour market policies and regulations can affect the sector when many low-skilled workers are outside the labour market.

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[19] Kairos Future Travel Trend Report 2016 (SIFO and Bookatable, 2016).

[20] John Naisbitt discussed the phenomenon in his book High Tech, High Touch (1999), and as early as in 1982 in his book Megatrends.

[21] Stanislav Ivanov, Professor of Tourism Economics, Varna University.

5/KAIROS'S FOUR SCENARIOS FOR THE FUTURE

What degree of automation can be expected in the hospitality industry (especially the hotel and restaurant sector) by 2030?

There are a number of studies in this area that show in many ways the same picture – the hotel and restaurant sector is one of the sectors where automation and robotisation have the greatest potential. However, researchers do not agree on exactly *how much* the sector will be automated. Kairos Future presents four different scenarios for 2030. These are the basis for estimating the number of jobs in the traditional jobs (the occupations existing today) in the sector in the future.

Scenario 1: No further automation

If no further work elements will be automated, which Kairos Future considers unlikely, by 2030 there will be about 209,000 employees in the hotel and restaurant sectors to cover the consumption needs.
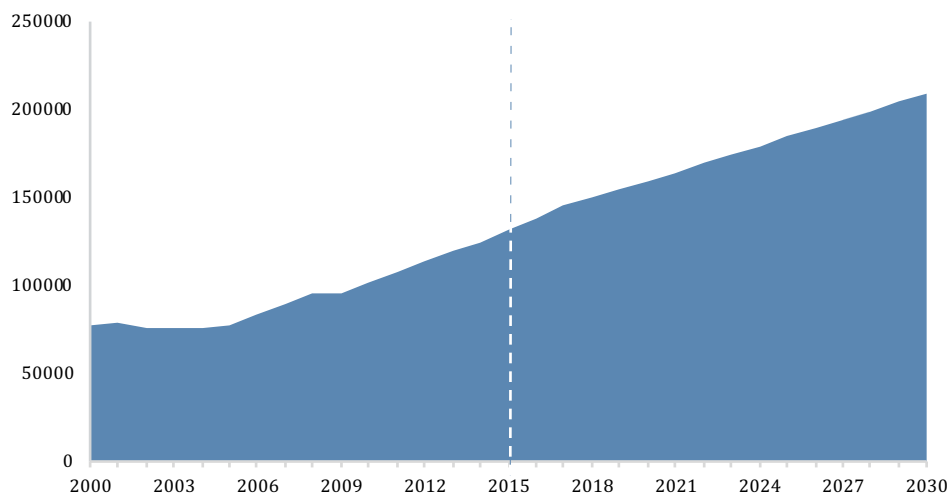

Figure 2. Number of employees (annualised average) in traditional occupations in 2030 with Scenario 1.
Source: SCB and Kairos Futures' own forecast.

Scenario 2: McKinsey & Co.

In a recently published study, McKinsey & Co. has investigated the automation potential of different sectors in eight countries in Europe.[22] They find that Sweden is one of the countries with the greatest automation potential and that 60 % of working time in the hotel and restaurant sector can be automated by 2030.

If their forecast comes true, about 83,600 employees in traditional jobs would need to be employed – about the same size of the labour force as in 2006 – despite growing consumption of hotel and restaurant services. Compared with Scenario 1, this means that the sector would need about 125,000 fewer employees, which is significantly fewer than today.
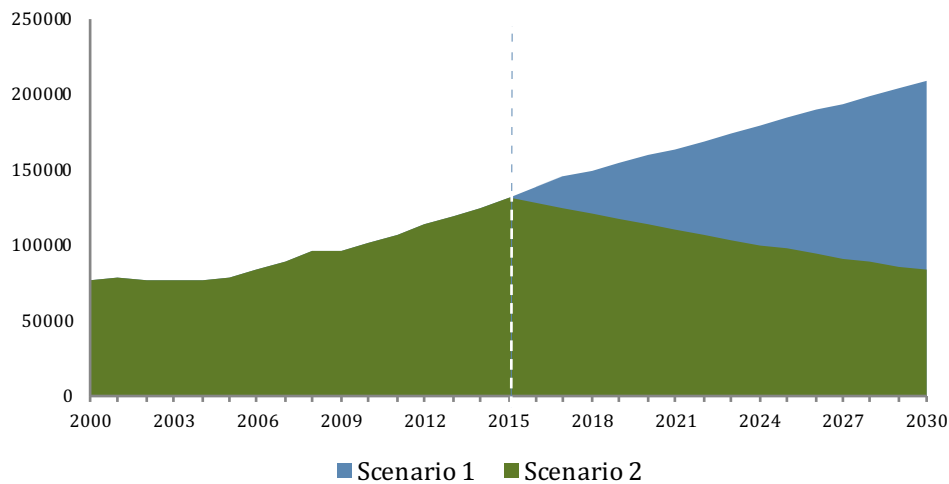

Figure 3. Number of employees (annualised average) in traditional occupations in 2030 for Scenarios 1 (blue) and 2 (green). Source: SCB, McKinsey & Co. and Kairos Future's own forecast.

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[22] Digitally-enabled automation and artificial intelligence: Shaping the future of work in Europe's digital front-runners (McKinsey & Co, 2017).

Scenario 3: Foundation for Strategic Research

The Foundation for Strategic Research, together with Stefan Fölster, has investigated how automation will affect individual professions.[23] The analysis shows that every other job in Sweden can be automated; however, in the hotel and restaurant sector, this can be considerably more. For example, about 95 % of receptionists' duties might be automated by 2030.

Automation Potential

Job	Degree	Number 2015	Number 2030
Restaurant and kitchen workers (and similar)	89 %	32,527	5,142
Job responsibilities unknown	50 %	26,207	18,169
Cooks and cold-buffet	88 %	18,634	2,997
Head waiter and waiters/waitress	88 %	13,982	2,249
Cleaners	64 %	7,594	3,749
Hotel receptionists (and similar)	95 %	5,016	327

Table 1. Automation potential for each occupational group.
Source: Foundation for Strategic Research and Statistics Sweden, Kairos Future's Processing.

According to Scenario 3, the sector will need approximately 46,000 employees (annualised average) in 2030 – which corresponds to approximately 35 % of today's number. Compared to Scenario 1 in 2030, with no automation, this means that four out of five traditional jobs will be automated.
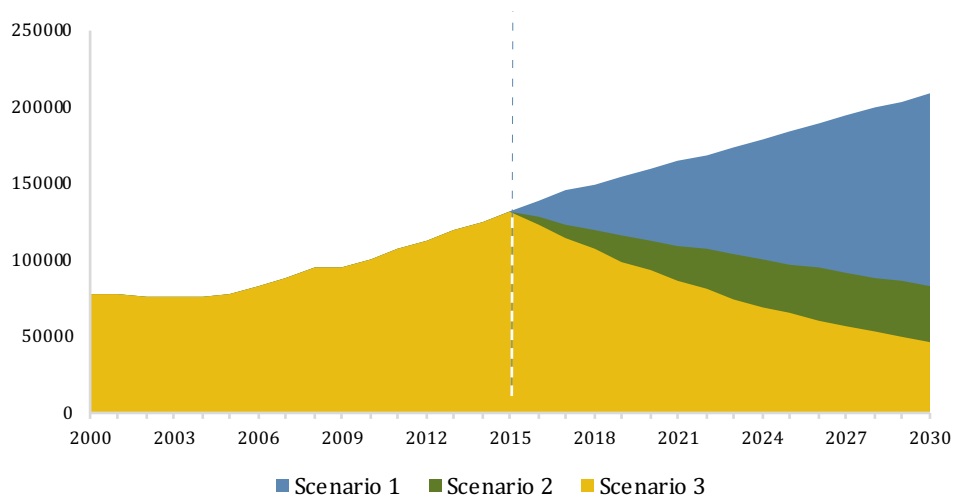

Figure 4. Number of employees (annualised average) in traditional occupations in 2030 for Scenarios 1 (blue), 2 (green), and 3 (yellow).
Source: SCB, McKinsey & Co., The Swedish Foundation for Strategic Research, and Kairos Future's own forecast.

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[23] Every second job is automated within 20 years – Challenges for Sweden (The Foundation for Strategic Research, 2014).

Scenario 4: Kairos Future's aggregate forecast

Kairos Future estimates that neither McKinsey's nor the Foundation for Strategic Research's proposals are particularly likely because they focus on automation potential rather than actual realisation. The fact that hotel and restaurant companies *can* automate a larger part of their workforce does not necessarily mean they *will*. In order to better elucidate a probable scenario, it is necessary to take certain external factors into account, primarily financial and political incentives. Another aspect is the wage structure and whether it will be financially advantageous to replace existing personnel with robots or AI.

An automation rate of 50 % could potentially be able to reduce companies' costs by about 15 %, and an automation rate of 75 % could potentially reduce costs by some 20 %. In other words, there are financial incentives, so when automated solutions become cheaper than human employees, more and more companies will choose to automate. And when more and more companies choose to automate, other companies will be forced to keep up to keep costs down.

Consumers' attitudes toward automation are another aspect to consider. Will they still value hospitality and personal contact, or will this be out-prioritised when time becomes an ever-increasing shortcoming?

Total number of employees in traditional occupations in 2030

Given a forecast of total consumption and a forecast of consumption per employee, as well as the estimation of the degree of automation for the sector, a final forecast of the number of employees in traditional occupations in the sector in 2030 can be made.
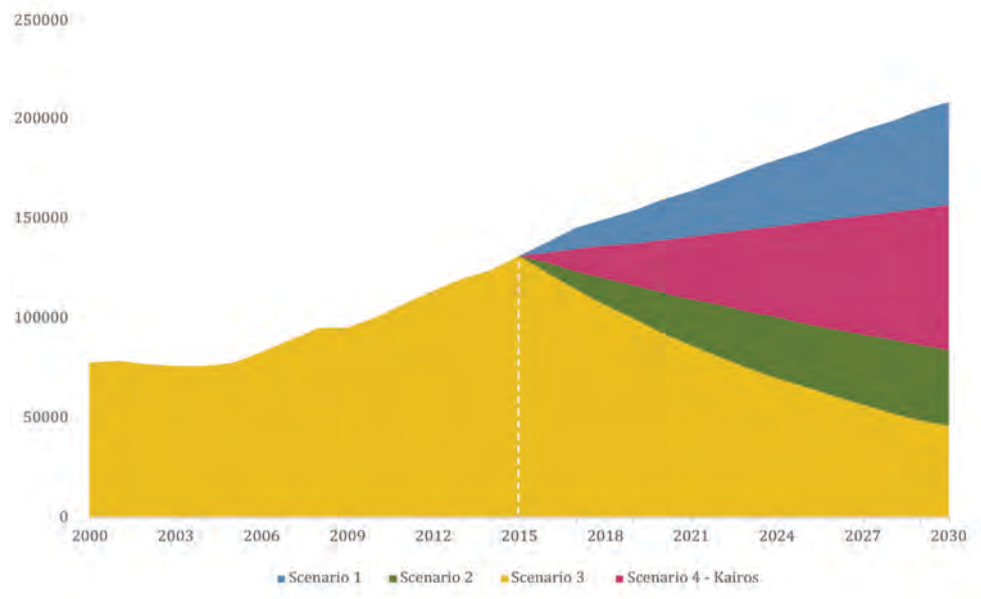

Figure 5. Number of employees (annualised average) in traditional occupations in the sector.
Source: SCB, McKinsey & Co., the Foundation for Strategic Research and Kairos Future's own forecast.

Kairos Future believes that the most likely development lies in an automation rate between 25 and 60 %, that is, somewhere in the pink area in Figure 5. In such cases, the need for labour in the traditional hotel and restaurant sectors would be between about 84,000 and 157,000 individuals by 2030.

The table below shows how many people are predicted to be employed in the respective traditional occupations in 2030 with 25 % and 60 % automation, respectively, on the presumption that the distribution of occupational roles is the same and that automation affects all occupations to the same extent.

Number of employees in the hotel and restaurant industry with two different degrees of automation

Job	Number 2015	Share 2015	Number 2030 at 25 % automation	Number 2030 at 60 % automation
Restaurant and kitchen workers (and similar)	32,527	21.6 %	38,225	20,387
Job responsibilities unknown	26,207	17.4 %	28,551	15,227
Cooks and cold-buffet	18,634	12.4 %	20,185	10,765
Head waiter and waiters/waitress	13,982	9.3 %	16,830	8,976
Cleaners	7,594	5.0 %	7,319	3,904
Hotel receptionists (and similar)	5,016	3.3 %	6,961	3,712

Table 2. Number of employees in traditional occupations 2030 with two different degrees of automation.

Recruitment needs by 2030 in traditional occupations

Visita estimates that up to 40–45 % of employees in the sector leave their employer every year, but they do not necessarily leave the sector altogether. Svenskt Näringsliv (The Confederation of Swedish Enterprise) estimates that the corresponding figure for the year 2016–2017 among business, hotel, and restaurant employees was about 37 %.[24]

This does not say how much staff turnover is at the sector level, that is, how many leave the sector entirely each year. The results from the survey sent out to employees, which was carried out within the framework of the previous "Growth Pains?" project[25] indicated that approximately 23 % of the employees planned to leave the sector within 1 to 2 years or earlier.

This leads to an assumption of about 25 % annual employee turnover at the sector level as an acceptable estimate. If one-quarter of those working in the sector leave every year and have to be replaced, and the sector continues to grow, the total recruitment requirements with various degrees of automation can be estimated.

[24] Fakta om löner och arbetstider 2017 (in Swedish) [Pay and working hours data 2017], (Confederation of Swedish Enterprise, 2017).
[25] Growing Pains?, BFUF Report #2, 2014.

Growth and recruitment needs at 25 % automation

Year	Employees	Growth	Leave the sector	Recruitment Needs
2015	131,630	7,112	30,004	40,020
2020	139,533	1,618	34,883	36,501
2025	147,911	1,715	36,978	38,693
2030	156,792	1,818	39,198	41,016

Table 3. Forecast of growth and recruitment needs at 25 % automation, 2015–2030.

Growth and recruitment needs at 60 % automation

Year	Employees	Growth	Leave the sector	Recruitment needs
2015	131,630	7,112	30,004	40,020
2020	113,152	3,475	28,288	24,812
2025	97,267	2,988	24,317	21,329
2030	83,613	-2,568	20,903	18,335

Table 4. Forecast of growth and recruitment needs at 60 % automation, 2015–2030.

Uncertainties and alternative scenarios

The forecast for the sector's growth is based on the assumption that the observed trend will continue without any major surprises. Unforeseen events and uncertainties can be of great importance to the sector's future and are important to keep under surveillance. Possible factors to keep an eye on are the growth of transport costs (both fuel prices and competition between transport operators), climate threats and their impact on travel, and the turbulent economic situation in Sweden, Europe, and the world where a deterioration or collapse can change the conditions drastically. Even security policy issues are a factor to be taken seriously.

The most important factor is the trend in demand for Swedish households. Of course, if population growth has been overestimated or underestimated by Statistics Sweden, this will also affect total consumption estimates. The overall forecast assumes that the very steady increase in overall consumption per inhabitant in Sweden will continue, but if this trend breaks then several assumptions in the forecast (like increasing production value per employee or increasing proportion of hotel and restaurant consumption) will simultaneously be affected to such an extent that predictions become too difficult to make.

The degree of automation scenarios depend upon a wide range of factors, where human acceptance of technology, the sector's willingness to invest, and the speed of technology development might prove to be greater or lesser than Kairos Future assumed.

The forecast for recruitment needs is influenced by, among other factors, the development of fluctuations in the sector.

Automation creates new work tasks

The above calculations focus on traditional occupations. Although some of these will disappear, this does not necessarily mean that the number of employees in the sector will decrease.

Automation creates the need for new types of tasks, some of which will be performed by people employed by companies in the sector, while external companies will likely provide others.

In a general environment within the sector that might look completely different in 2030, it is difficult to predict the new work tasks that will arise.

New possible work tasks (already partially in existence today) potentially include the following:
- Purchase of RaaS and SaaS
- Robot coordination, robotic teaching, and robotic training
- Training and service of the company's own AI system
- Creating personalised customer experiences using big data; the service and concept developers of the future will probably be people, but will have AI as a tool they use in the process.
- Floor walking, and taking on roles for different types of situations that require creativity, perception, social intelligence, and motor skills
- Social media expert who creates content on-site and responds to real-time comments and reviews
- Superintendent who oversees and ensures the quality assurance of the service
- Technical caretaker who maintains the technology

People as a unique selling position

If the means of competition in the hospitality industry in the future is the service profile, automation can free up time for staff to personally take care of and entertain the guest, which creates added value and increased willingness to pay. That some form of human contact is desirable is clear; however, the question is to what extent. We will probably see more general roles in the future, where the bartender works as an educator, robot caretaker, and entertainer.

6/EFFECTS ON SKILLS AND EDUCATION IN THE FUTURE

The sector is likely to continue to have a significant recruitment need, both due to growth and as a result of high personnel turnover, despite increased automation. From the industry's perspective, it is of course desirable that the openings for personnel be filled by persons with industry-specific education. This helps the sector to be professionalised, raises the standard of professional skills and the sector's status, and contributes to long-term development where the hotel and restaurant sector is more likely to be a career choice rather than just a temporary job.

In order to reflect on the education of the future – who will be responsible for it and how it needs to be developed – we first take a look at what the education looks like today.[26]

The largest number of sector-adapted study places is at the upper secondary level – and it is from these upper-secondary schools that the greatest number of those with a hotel and restaurant vocational education come. However these schools are not close to training enough people to be able to satisfy the sector's needs concerning staff and skills.

Because hotel and restaurant companies are located throughout the country and operate at the local level, it is important that the training courses are close to the market and companies. According to the Swedish National Agency for Education, there are no students in Year 3 in the Restaurant and Food Programmes in 185 out of 290 municipalities in Sweden, and no fewer than 218 municipalities have no students in a hotel and tourism programme. This is partly due to the fact that the number of applicants is decreasing and partly due to the programmes having a difficult time recruiting competent teachers.[27] An additional factor is that it is expensive to equip the educational programmes with technology in the form of kitchens, other equipment, and raw materials for teaching.

The trade school has developed into an important form of education for the sector's needs by maintaining theoretical and practical knowledge. The internships that are a part of the occupational/vocational education are an important step towards the labour market, and employers often show interest in hiring students after they have completed their internship.

Due to the fact that both demand and technology have undergone significant development, as well as to the fact that the sector is being consolidated into an increasing number of larger companies, companies' demands for academically educated individuals has increased. Over the last twenty years, education at the secondary and advanced level with an emphasis on hospitality and service management (hospitality and leadership) as well as an emphasis on gastronomy and meal knowledge and restaurant management has evolved. Studies of educational institutions show that almost all of those who have completed these programmes have a job in the sector when they graduate.

The gap between graduates from sector-specific educational programmes and the sector's needs is huge. If sector-based educational programmes at different levels of the educational system fail to increase the number of places being offered, and/or if the personnel turnover in the sector drops drastically, the proportion of staff undergoing training geared to the sector's needs will remain very low.

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[26] The chapter is based on Kairos Future's data, compiled and edited by BFUF.

[27] A Country to Visit – A Coherent Policy for Sustainable Tourism and a Growing Tourism and Hospitality Industry, SOU 2017:95.

Tomorrow's education and skills needs

Automation will place much greater demands on both the public sector and private actors to invest in educational programmes and skills development. Such support is needed to help people in continuously adapting to and following technological progress.

Need for staff with a higher education degree

Personnel with sector-oriented education are in demand, and upper secondary vocational education is important for providing skilled workers to companies. As a result of the negative trend in the number of trained educators in upper secondary school education programmes, the study places in regular adult education programmes and initiatives within labour market education programmes have become increasingly important for satisfying the sector's needs for those with relevant skills and for the growth of the industry as a whole. These efforts will continue to be important so that the sector can attract adults who want to change their type of job or career paths. With regard to the jobs that are at risk of automation, it is becoming increasingly evident that the sector's companies will experience an increasing need for personnel with a higher level of education, both now and in the future. We see a future need for more academically educated workers and a need for more academic programmes that are specifically tailored to the sector.

Technology affects the format and method of skills development

In an increasingly automated society, the understanding of new technology becomes an important expertise. The World Economic Forum emphasises that the educational programmes of the future should design curricula that adequately teach how the workers in the sector in the future will jointly collaborate with intelligent technologies.[28] This not only applies to new recruitment, and it is also an important expertise to maintain internally.

Trends in educational programmes' format should include:

- More blended learning where technology and humans are all in sync.
- Web-based distance learning, flexible learning, and lifelong learning concepts.
- Centralised inspiration/instruction (lectures/films with the very best inspectors/instructors).
- Local coaches who provide support in training what one has learned.
- "Gamification" and instant feedback.

The content of the training programmes: The need for both technical skills and personal hospitality

As a result of increased automation, human qualities might become an increasingly important competitive factor in the future digital landscape. These should be included and given room for development in the educational programmes of the future. They will also be important in getting the right people to apply for professional education within the sector. Technical skills, in terms of technical solutions and how they are used, will also be important in the labour market of the future. Being able to teach a robot, being able to act as a problem-solver when the technology fails, or being able to train the company's AI in new areas of knowledge will become desirable skills in an increasingly automated sector. In a fast-changing world, the

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[28] World Economic Forum, 2017:http://reports.weforum.org/digital-transformation/wp-content/blogs.dir/94/mp/files/pages/files/wef-dti-aviation- travel-and-tourism-white paper.pdf

training needs to be flexible, readily available, and up to date on the technology used by the sector.

Trends in the educational contents of the programmes should emphasise:

- Greater social intelligence (the unique advantage of humans over machines and the business enterprise's added value in positioning vis-à-vis the customer).
- More creative intelligence (conceptualisation, problem-solving, etc.).
- More perception (management of complex situations in dynamic environments).
- Leadership (by man and machine).
- Sales (in order to respond to increasing competition).
- Generic basic education and training.
- Specialisation.

Who is responsible for the education of the future?

Political decision-makers, senior management of companies, the labour market's partners, and those involved in education and training activities play a vital role for the future education and need to strategically collaborate in order to develop people and to provide the support they will need in order be able to adapt to and follow along with technological developments.

How do we assure the quality of the education of the future?

In order to be able to determine whether a person is fit for a particular position, different types of evaluation methods are used – including auditions if it is one's attitude that is in focus, and exercises if it is one's skills that are to be tested. It is likely that this trend will be strengthened. The hospitality industry plays an important role in the quality assurance of the skills and qualifications that will be examined in the future.

Many people working in the hospitality sector lack a formal diploma or other certificate of their knowledge. Together with representatives from the sector, Visitas' and HRFs' joint professional board has developed a method of validation of skills. Validation can be used to a great advantage by a company or training coordinator as a tool for quality assurance of expertise or for quality assurance of educational programmes in relation to the sector's occupational requirements.

Need for more flexible and open educational structure

Training at all levels must be better adapted to new opportunities and challenges. Industry slippages are occurring right now, therefor the capacity of development and adaption will be much needed. The educational system needs to be re-designed with a more flexible, open, and clear structure. Making a career in the hospitality industry would be easier with more structured transitions between the educational system and working life.[29] This imposes requirements for good cooperation between the Swedish National Agency for Education, the Swedish Public Employment Service, the educational system, those responsible for promoting regional growth, and, in particular, the industry itself, and a primary goal of such work would be to formulate needs and offer workplace-based internships for students studying at upper-secondary schools as well as at universities and other institutions of higher education.[30]

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[29] A Country to Visit – A Coherent Policy for Sustainable Tourism and a Growing Tourism and Hospitality Industry, SOU 2017:95.

[30] The summary conclusions are based both on Kairos Future's assignment and BFUF's own analysis.